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10/527,115	03/08/2005	Hans Lobl	DE 020206	9528
65913	7550	07/30/2008	EXAMINER	
NXP, B.V. NXP INTELLECTUAL PROPERTY DEPARTMENT M/S41-SJ 1109 MCKAY DRIVE SAN JOSE, CA 95131			NADAV, ORI	
			ART UNIT	PAPER NUMBER
			2811	
			NOTIFICATION DATE	DELIVERY MODE
			07/30/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

# Office Action Summary

## Application No.

10/527,115

## Applicant(s)

LOBL ET AL.

## Examiner

Ori Nadav

## Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 6-25 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-12 and 14-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of the embodiment of figure 3 in the reply filed on 6/6/2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, first and second BAW resonators connected together in a ladder and lattice configurations, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 20-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

There is no explicit description in the specification for a bulk acoustic wave filter comprising at least two bulk acoustic wave resonators which comprise means for suppression of pass-band ripple in a ladder or in a lattice type configuration, as recited in claims 20-22, in such a way as to enable an artisan how the claimed layers are connected to each other in a ladder and in a lattice type configuration to suppress pass-band ripple.

Claims 20-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no adequate description in the specification for a bulk acoustic wave filter comprising at least two bulk acoustic wave resonators which comprise means for suppression of pass-band ripple in a ladder or in a lattice type configuration, as recited in claims 20-25, in such a way as to the explicit structure of the claimed device.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claimed limitations of a "uneven surface of the substrate comprises an absorbing layer", as recited in claims 11 and 25, are unclear as to how a surface can comprise a layer.

***Claim Rejections - 35 USC § 102***

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 7-8, 11-12, 14 and 16, as best understood, are rejected under 35

U.S.C. 102(e) as being anticipated by Nishihara et al. (6,734,763).

Nishihara et al. teach in figure 21 and related text a bulk acoustic wave (BAW)

resonator comprising:

a top electrode 823;

a piezoelectric layer 822 disposed adjacent to the top electrode;

a bottom electrode 821 disposed adjacent to the piezoelectric layer, wherein the bottom electrode is disposed opposite the top electrode relative to the piezoelectric layer; and

a substrate 810 disposed opposite the piezoelectric layer relative to the bottom electrode, wherein the substrate comprises an uneven surface to suppress a spurious mode (column 3, lines 6-7), wherein

the uneven surface of the substrate comprises an absorbing layer 830, 840 disposed on the substrate to absorb the spurious mode, wherein

the absorbing layer is disposed on a front side of the substrate, between the substrate and the bottom electrode, wherein

the absorbing layer comprises at least one acoustic absorbing material of a plurality of acoustic absorbing materials, wherein the plurality of acoustic absorbing

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materials comprises epoxy glue, an elasticoviscous material, rubber, silicon rubber, a plastic material, a porous media, and a porous thin film, and wherein:

the top electrode comprises a first metal material; the piezoelectric layer comprises at least one of a plurality of piezoelectric material; and the bottom electrode comprises a second metal material.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-25, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishihara et al.

Regarding claims 20-21 and 23-25, Nishihara et al. teach in figure 21 and related text substantially the entire claimed structure, as applied to the claims above, including a first BAW resonator to suppress a pass-band ripple of a spurious mode, wherein the BAW resonator comprising a substrate with an uneven surface to suppress a spurious mode.

Nishihara et al. do not teach in the embodiment of figure 21 a second BAW resonator connected to the first BAW resonator, the second BAW resonator to suppress the pass-band ripple of a spurious mode.

Nishihara et al. teach a second BAW resonator connected in a ladder configuration to the first BAW resonator (column 1, lines 45-48).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to connect a second BAW resonator to suppress the pass-band ripple of a spurious mode in a ladder configuration to the first BAW resonator in Nishihara et al.'s device, in order to improve the filtering characteristics of the device when it is used in a filter application.

Regarding claim 22, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to connect the second BAW resonator in a lattice configuration to the first BAW resonator in Nishihara et al.'s device, in order to use the device in a filter application which require lattice configuration.

Claims 9-10 and 15, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishihara et al. in view of Kobrin et al. (5,936,150). Regarding claims 9-10, Nishihara et al. teach in figure 21 and related text substantially the entire claimed structure, as applied to the claims above, the roughened surface of the substrate comprises an etched surface of glass and a blasted layer of glass. Kobrin et al. teach in figure 3 and related text a substrate 12 comprises an etched surface of glass and a blasted layer of glass.



It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a glass substrate in Nishihara et al.'s device, in order to use the device in an application which require insulating substrate.

Regarding the process limitations recited in claims 9 and 10 ("an etched surface of glass and a blasted layer of glass"), these would not carry patentable weight in this claim drawn to a structure, because distinct structure is not necessarily produced. Note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and In re Marosi et al., 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in product by process claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear.

Regarding claim 15, Nishihara et al. do not teach a Bragg reflector disposed between the substrate and the bottom electrode.

Kobrin et al. teach in figure 3 and related text a Bragg reflector disposed between the substrate and the bottom electrode.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a Bragg reflector disposed between the substrate and the bottom electrode in Nishihara et al.'s device, in order to use the device in an application which require reflecting layers.

### ***Response to Arguments***

Applicant's arguments with respect to claims 7-12 and 14-25 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ori Nadav whose telephone number is 571-272-1660. The examiner can normally be reached between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Gurley can be reached on 571-272-4670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

O.N.  
7/29/2008

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